

1 I claim:

2 1. A polymeric composition comprising:

3 a polyurea evenly distributed with an epoxy resin and a particulate filler, such
4 that said polyurea holds said particulate filler in suspension, wherein said polyurea
5 has a molecular weight between about 200 g/mole and about 2000 g/mole and is a
6 reaction product of an amine and an isocyanate being present in a ratio of between
7 1:10 and 1:40 and capable of reacting to form said polyurea within 1 to 30
8 seconds.

9 2. The polymeric composition of Claim 1 further comprising a plasticizer to soften
10 said polymeric composition.

11 3. The polymeric composition of Claim 2 wherein said particulate filler has a
12 density between about 0.009 g/ml and about 11.3 g/ml.

13 4. The polymeric composition of Claim 3 wherein said amine is an aliphatic amine
14 selected from a group consisting of n-aminoethylpiperazine, diethylenetriamine, and
15 triethylenetetramine.

16 5. The polymeric composition of Claim 3 wherein between about 0.1% and about
17 2.0% by weight of isocyanate is used.

18 6. The polymeric composition of Claim 3 wherein said isocyanate has a weight of
19 about 100 g/mole to 140 g/mole.

20 7. The polymeric composition of Claim 3 wherein said isocyanate is selected from

1 the group consisting of polymethylene polyphenylisocyanate and hexamethylene
2 diisocyanate.

3 8. The polymeric composition of Claim 3 wherein said plasticizer is present in an
4 amount less than about 40% by volume.

5 9. A bowling ball manufactured with the polymeric composition of Claim 1.

6 10. A method for preparing a polymeric composition having about 1% to 3% by
7 volume polyurea with a molecular weight of between about 200 g/mole and about
8 2000 g/mole evenly distributed with about 55% to 75% by volume of an epoxy
9 resin and about 0.2% to 30% by volume particulate filler, said method comprising
10 the steps of:

11 introducing a predetermined amount of an isocyanate and a precursor to said
12 epoxy resin into a first vessel, said isocyanate being a reactant in the formation of
13 said polyurea;

14 introducing a predetermined amount of an amine into a second vessel, said
15 amine being a reactant in the formation of said polyurea, said second vessel being in
16 proximity to said first vessel;

17 introducing said isocyanate, said precursor to said epoxy resin and said
18 amine into a mixing chamber, said isocyanate and said amine reacting to form said
19 polyurea and said precursor to said epoxy resin polymerizing to form said epoxy
20 resin.

- 1 11. The method of Claim 10 further comprising the step of adding a plasticizer to
2 soften said polymeric composition.
- 3 12. The method of Claim 11 wherein said particulate filler has a density between
4 about 0.009 g/ml and about 11.3 g/ml.
- 5 13. The method of Claim 12 wherein said amine is an aliphatic amine selected
6 from a group consisting of n-aminoethylpiperazine, diethylenetriamine, and
7 triethylenetetramine.
- 8 14. The method of Claim 12 wherein between about 0.1% and about 2.0% by
9 weight of isocyanate is used.
- 10 15. The method of Claim 12 wherein said isocyanate has a weight of about 100
11 g/mole to 140 g/mole.
- 12 16. The method of Claim 12 wherein said isocyanate is selected from the group
13 consisting of polymethylene polyphenylisocyanate and hexamethylene diisocyanate.
- 14 17. The method of Claim 12 wherein said plasticizer is present in an amount less
15 than about 40% by volume.
- 16 18. A polymeric composition comprising:
17 about 1% to 3% by volume polyurea evenly distributed with between about
18 50% to 68% by volume of epoxy resin and between about 0.2% to 30% by volume
19 particulate filler, such that said polyurea holds said particulate filler in suspension,
20 wherein said polyurea has a molecular weight between about 200 g/mole and 2000

1 g/mole and is a reaction product of an amine and an isocyanate being present in a
2 ratio of between 1:10 and 1:40.

3 19. The polymeric composition of Claim 18 further comprising a plasticizer to
4 soften said polymeric composition.

5 20. The polymeric composition of Claim 19 wherein said particulate filler has a
6 density between about 0.009 g/ml and about 11.3 g/ml.

7 21. The polymeric composition of Claim 20 wherein said amine is an aliphatic
8 amine selected from a group consisting of n-aminoethylpiperazine,
9 diethylenetriamine, and triethylenetetramine.

10 22. The polymeric composition of Claim 21 wherein between about 0.1% and
11 about 2.0% by weight of isocyanate is used.

12 23. The polymeric composition of Claim 21 wherein said isocyanate has a weight
13 of about 100 g/mole to 140 g/mole.

14 24. The polymeric composition of Claim 21 wherein said isocyanate is selected
15 from the group consisting of polymethylene polyphenylisocyanate and
16 hexamethylene diisocyanate.

17 25. The polymeric composition of Claim 21 wherein said plasticizer is present in an
18 amount less than about 40% by volume.

19 26. A bowling ball manufactured with the polymeric composition of Claim 18.